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Aug. 2*d*, 1870.

Mr. Vaux, Vice-President, in the Chair.

Twelve members present.

Prof. Leidy exhibited in a vessel of water, numerous living specimens of a leech, which he said was abundant in the vicinity of Philadelphia, but appears to be an undescribed species. He had first observed it in a pond, on the Delaware, near Beverly, Burlington Co., N. J., from which he obtained the largest specimens. It was found especially beneath half-submerged dead limbs of trees, sometimes between the bark and wood, and in crevices and holes of the latter made by insects. It was also found in the Delaware and Schuylkill rivers near shore, beneath stones. In ditches below the city, and communicating with the rivers mentioned, smaller leeches, apparently the young of the same, were frequent between the leave sheaths of submerged stems of aquatic plants, such as *Zizania aquatica*, *Scirpus fluviatilis*, *Sagittaria*, *Sparganium*, &c. When disturbed, the animal receded from its position of rest, and swam rapidly like the ordinary medicinal leech, *Hirudo decora*. It appears to belong to a different genus from the latter, and approaches most in character *Nephelis*, though it even exhibits points of difference from this as ordinarily described. The more mature animal from the Beverly pond may thus be characterized :

Body elongated, flattened cylindroid, narrowing anteriorly, smooth, indistinctly annulated, margin acute, above blackish olivaceous, below translucent grayish, with a more or less reddish tinge due to the blood. No striæ or markings visible beneath, and the annuli in this position scarcely perceptible. Annuli about 98, above minutely punctated with yellowish olivaceous or dusky whitish, and narrowly defined by the same hue. Head continous with the body, obtuse. Mouth large, obliquely terminal, subbilabiate; lower lip crenulate. Jaws three rudimental folds without teeth. Œsophagus capacious, with three longitudinal folds. Intestine simple. Anus dorsal, conspicuous, in the penultimate annulus. Eyes six ; anterior pair largest and approximated: second pair in second annulus corresponding with the lower lip ; third pair smallest, more deeply situated than the others, and placed slightly external and posterior to the second pair. Acetabulum terminal, inferior, circular, nearly as wide as the body. The larger male aperture conspicuous, and situated about one-fifth of the length of the body from the head ; the smaller female aperture scarcely visible, and situated two or three annuli back of the former. Length to 2½ inches by two lines wide ; by contraction becoming shorter and wider.

Smaller specimens, from half an inch to an inch in length, from the ditches communicating with the Delaware and Schuylkill Rivers, and from the latter, agree in form and constitution with the preceding, having the same number of annuli to the body, and the same number and disposition of the eyes. The color is translucent pale indian-red, passing into darker shades and without the colored punctæ. Some young pale individuals exhibit a few scattered minute black punctæ down the back, due to single pigment cells, but mostly these are absent. Intermediate sized individuals from the Delaware and Schuylkill exhibit a gradation of character between the two forms indicated. Further, numerous young from the ditches, kept in an aquarium for the last month, have gradually assumed the appearance of the more mature animal as first described.

Nephelis vulgaris of Europe has eight eyes ; and the generative apertures are included between the 34th and 38th annuli. In the species above described I could detect but six eyes, and the annuli at the fore part of the body are too indistinctly defined to determine the exact relative position of the generative apertures.

The new species of *Nephelis* I would propose to name N. punctata.

I take the present opportunity of observing that yesterday, during a stroll in the meadows below the city, to procure specimens of the leech just described, I observed that many of the ditches, and several ponds, were teeming with the minute plant *Wolffia*, probably *W. Columbiana*, mingled with *Lemna polyrrhiza* and *L. minor*. In several places I also observed *Stentor polymorphus* swarming upon *Ceratophyllum demersum*, conspicuous by its bright pea-green hue upon the darker hue of the latter plant. In similar positions I also observed an abundance of *Volvox globator*. This latter I have frequently seen in the vicinity of our city, and, preserved in an aquarium, have observed it pass through the various stages representing what were formerly viewed as distinct species under the names of *V. aureus* and *V. stellatus*.

In the course of my walk, I noticed upon the margin of a ditch a large mass of jelly, about two feet in breadth and about two inches in thickness, the character of which I at first did not recognize. It reminded me of the jelly-fish or medusa (*Cyanea arctica*), so frequently seen stranded on the ocean shore of New Jersey. A nearer inspection proved it to be a mass of the remarkable compound ciliated fresh-water polyp, or polyzoon, formerly described by me under the name of *Pectinatella magnifica*, which had, by an unusual recedence of the tide, been left to die on shore. On examining the ditch in the vicinity, I observed many masses of the same polyp, varying from the size of one's fist to that of a boy's head, mostly attached to the pendent leaves of aquatic plants growing at the margins of the ditch.

PROF. COPE called attention to a large specimen of a *Trigonocephalus*, of which some fourteen inches was enclosed in the œsophagus and stomach of a larger *Oxyrrhopus plumbeus*. The specimens were from the island of St. Lucia, W. I. He stated that a species not distantly related to the latter (*Ophibolus getulus*) was said to have a similar habit of devouring our native Crotalidæ. The islands of Martinique and Guadaloupe had become so infested with the fer-de-lance, *Trigonocephalus lanceolatus*, as to be in parts almost uninhabitable, and that it was chiefly on account of the danger from this venomous reptile that collecting naturalists had of late years so seldom visited them. The annual number of deaths in Martinique from this cause was said to be very large. Some means had been adopted to check the increase of this pest, but with small results. Prof. Cope thought that as the *Oxyrrhopus plumbeus* was very numerous in Venezuela and Brazil, and since it was very harmless and easily procured, that its introduction in large numbers into Martinique, etc., would be a simple matter, and one probably to be attended with good results in the diminution, at least, of this enemy of agriculture.

MR. THOMAS MEEHAN called attention to the arrangements of some plants for preventing fertilization through any other than insect agency, as discovered by Darwin. The *Salvia* family of plants had the most elaborate arrangements for insect agency, but it had been objected to Darwin's theory that insects made no use of them. Bees bored holes through the tube from the outside for the honey, and do not enter by the mouth of the flower, as they ought. In the same way, in the *Petunia*, bees bore for honey from the outside. He had discovered that in these cases, where day insects failed to make use of these apparatuses, fertilization was carried on by night moths, so that the objections to Darwinism were removed.

He also referred to the common sweet chestnut, as bearing two classes of male flowers, only one of which probably aided in fertilization. The first class appeared ten days before the other, and are those which give whiteness to the trees. They appear in the axils of the weak shoots. The female flowers appear on the apices of strong shoots, according to his theory of the laws of sex. The second class of male flowers appear at the ends of the vigorous shoots bearing the female flowers. Whatever affects the vigor of the tree interferes with the production of female but not of male flowers, and this was the reason why some seasons had short crops.

MR. J. H. REDFIELD remarked that, on a recent visit to the northern part of the State of New York, he had noted the *Botrychium lunarioides* and *Botrychium lanceolatum* growing under circumstances that seemed to confirm the idea that these species are really underground parasites, or *epiphytic* plants. More than twenty plants were noticed scattered over a space of a mile in length, and in every instance they were growing near the common blackberry (*Rubus villosus*), and every plant that was lifted had its roots in contact with the root of the blackberry. He referred to the peculiar character of the root of this genus,—so different from that of other ferns, and so similar to that of some orchids,—and to the fact that these species, so widely distributed, seem nowhere abundant,—as favoring the idea of their epiphytic character. Mr. Newman some years ago expressed the opinion that the British *Botrychium lunaria* is an underground parasite, but Moore and others have doubted. Mr. R. desired to call the attention of botanists to the conditions under which these and other species of *Botrychium* may be found, with a view to determine the question.

Aug. 9th.

MR. VAUX, Vice-President, in the Chair.

Fifteen members present.

The following paper was presented for publication:

"On some new species of Fishes obtained by Prof. Orton from the Maranon River, Upper Amazon and Napo Rivers." By Theo. Gill.

MR. THOMAS MEEHAN said very little had been written about the causes of those bunches of branches often seen in trees, and called by the people "crow's nests," and by botanists *fasciations*. Dr. Masters, in *Teratology*, briefly refers to them, and refers to "over-nutrition" the cause of their existence. He had watched almost daily the past year one of *Abies balsamea* on his own grounds. The branchlets were weak, the leaves were comparatively long and slender, not distichously arranged, pale in color, deciduous, and many of the branchlets died in the winter. All these were evidences of weak nutrition.

He had found two trees of sassafras, apparently of the same age, growing within a few yards of each other, but one with numerous fasciculated bunches. In addition to the characters in the other case, here the fasciculated tree was not as large as the other one.

That weakness, not strength, was the cause, was also proved by facts from an opposite direction,—namely, the law of sex. He had already shown that a low condition of vitality favored male, at the expense of the female organs. He had found a large number of fasciculations in the common blackberry, and in all instances, besides the yellowness and the other marks, there was a tendency to abortion in the pistils, an increase in the number of petals, and a development of foliaceous points to the usual calyx segments. So that his law of sex, as well as the usual phenomena of weakened vitality, indicated that it was this and not over-nutrition which caused fasciations in trees.

Aug. 16th.

MR. VAUX, Vice-President, in the Chair.

Seven members present.

Aug. 30th.

The President, DR. RUSCHENBERGER, in the Chair.

Fifteen members present.